

CLAIMS

1. Device for manufacturing metal cords to be used particularly for reinforcing composite elastomeric products, comprising:
- 5       • a supporting structure;
  - a rotor engaged with respect to said supporting structure and rotatable according to a predefined axis;
  - 10       • a cradle fastened to said supporting structure according to an oscillation axis which coincides with the rotation axis of the rotor;
  - feeding devices operatively fitted on said cradle to feed several elementary wires from  
15       respective feeding spools, said elementary wires being driven onto said rotor according to a stranding path with end sections coinciding with the rotation axis of said rotor and with a central section distanced from said rotation axis;
  - 20       • at least one preforming device operatively engaged with the cradle and operating on one of said elementary wires in a section upstream with respect to the first end section of the stranding path;
  - 25       characterized in that said at least one preforming device is suitable for providing said elementary wire with a deformation which is substantially sinusoidal without sharp edges.

2. Device according to Claim 1, characterized in that it comprises a preforming device for each elementary wire of said metal cords.
3. Device according to Claim 1, characterized in that  
5 said at least one preforming device comprises a first and a second pulley fastened to a suitable supporting structure free to rotate about its axis, each pulley having a plurality of opposed pins suitable for reciprocal penetration for a  
10 predefined distance so as to induce a sinusoidal deformation without sharp edges on a wire passing through the space between the pins of the first pulley and the corresponding pins of the second pulley.
- 15 4. Device according to Claim 3, characterized in that said first and second pulleys are driven in rotation by the wire.
5. Device according to Claim 3, characterized in that said distance is variable.
- 20 6. Process for manufacturing a metal cord, particularly for reinforcing composite elastomeric products, comprising at least two elementary wires, with a diameter preferably between 0.10 and 0.50 mm, said procedure comprising the  
25 following phases:
  - permanently deforming at least one of said elementary wires by means of a deformation which is substantially sinusoidal without sharp edges;

- stranding said elementary wires together by means of helicoidal double twisting around the longitudinal axis of said cord.
- 5        7. Metal cord, particularly for reinforcing composite elastomeric products, comprising at least two elementary wires of which at least one is preformed according to the process of Claim 6.
- 10       8. Tyre for vehicle wheels, comprising a torus-shaped carcass, a tread located on the periphery of said carcass, a pair of axially facing side walls ending with beads reinforced with bead wires and respective bead filling elements for fixing said
- 15       tyre to a corresponding mounting rim, said tyre comprising rubberized fabrics reinforced with metal reinforcing cords, comprising at least two elementary wires helicoidally twisted together and around the axis of longitudinal extension of the cord, characterized in that at least one of said elementary wires is permanently deformed by a
- 20       substantially sinusoidal deformation without sharp edges.